

## REVISIONS TO CLAIMS

1. (original) Scintillator (20) for an X-ray detector, comprising
  - a scintillation layer (30) for the conversion of X-rays (X) into optical photons ( $\nu$ );
  - a reflector (40, 140) disposed near at least one surface of the scintillation layer (30) for reflecting optical photons ( $\nu$ ) back into the scintillation layer, wherein the reflectivity of the reflector can be altered;
  - a control device (50) for selectively altering the reflectivity of the reflector (40, 140).
2. (currently amended) Scintillator according to claim 1, characterised in that the reflector and the control device are adapted to alter the reflectivity to have locally differences.
3. (original) Scintillator (20) according to claim 1, characterised in that the reflector (40, 140) and the control device (50) are adapted to alter the reflectivity gradually.
4. (original) Scintillator according to claim 3, characterised in that the gradual alteration of the reflectivity is approximated by discontinuous changes of the reflectivity on a high resolution scale.
5. (currently amended) Scintillator (20) according to claim 1, characterised in that the reflector (40) comprises two planar electrode arrangements (44a, 44b) between which a reflective layer (41, 42, 43) ~~consisting of~~ comprising electronic ink or an absorbing layer with voltage and/or current dependent absorption properties is disposed.

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6. (original) Scintillator according to claim 5, characterised in that at least one of the electrode arrangements consists of several single electrodes which can be selectively controlled.

7. (currently amended) Scintillator according to claim 5, wherein

\_\_\_\_\_ the reflective layer comprises said absorbing layer and ~~characterised in that~~  
\_\_\_\_\_ one of the planar electrode arrangements has a high reflectivity in the direction  
towards said absorbing layer.

8. (currently amended) Scintillator according to claim 5, wherein

\_\_\_\_\_ the reflective layer comprises said absorbing layer and ~~characterised in that~~  
\_\_\_\_\_ the absorbing layer comprises an electrochromic substance and/or suspended  
particles that change their arrangement in response to the voltage and/or current applied to the  
electrode arrangements.

9. (original) Scintillator according to claim 1, characterised in that the reflector (140) comprises a container (143) that may selectively be filled with substances (142, 145) of different reflection properties and/or absorption properties.

10. (original) Scintillator according to claim 1, characterised in that the reflector comprises a substance that alters its reflection properties and/or absorption properties in response to chemical and/or electrochemical influences.

11. (currently amended) X-ray detector with an array of sensor elements (12) for ~~the~~ spatially

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resolved detection of optical photons (v) and with a scintillator (20) arranged adjacent to said array, wherein the scintillator (20) comprises:

a scintillation layer (30) for the conversion of X-rays (X) into optical photons (v)

and

means (40, 50, 140) for changing the degree to which optical photons (v) are reflected back into the scintillation layer (30) on at least a part of the surface of the scintillation layer (30)

wherein the means for changing is adapted to change the degree after assembly of the detector.

12. (currently amended) Method for ~~the~~ spatially resolved detection of X-rays (X), comprising:

a) ~~conversion of~~ converting X-rays (X) into optical photons (v) in a scintillation layer (30);

b) ~~detection of~~ detecting photons (v) out of the scintillation layer (30) that reach a photosensitive detector (10);

c) reflecting photons (v) back into the scintillation layer (30) that would not reach said detector (10);

d) adapting the reflectivity in step c) according to given criteria ~~like the desired sensitivity, spatial resolution and/or dynamic range of the method~~

wherein the adapting occurs responsive to a reflector control device and after completion of an assembly including the scintillation layer and the control device.

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13. (previously presented) X-ray detection apparatus that comprises an X-ray detector according to claim 11.
14. (new) The method of claim 12, wherein the given criteria comprise sensitivity.
15. (new) The method of claim 12, wherein the given criteria comprise spatial resolution.
16. (new) The method of claim 12, wherein the given criteria comprise dynamic range.
17. (new) The scintillator of claim 1, wherein the control device is for altering the reflectivity in at least one single location of the reflective layer over a period of time after assembly of the scintillator.
18. (new) An x-ray detector comprising:
  - a) a scintillation layer;
  - b) a controllable reflector, disposed substantially parallel to the scintillation layer, for reflecting optical photons back into the scintillation layer; and
  - c) a reflector control device for altering reflectivity of the reflector after assembly of the detector.
19. (new) The detector of claim 18, wherein the reflector and reflector control device cooperate to achieve time-varying local differences in reflectivity after such assembly.